

DISSECTION ESSENTIAL TO MEDICAL
SCIENCE.

A

LECTURE

DELIVERED AT THE

COMMENCEMENT OF THE WINTER SESSION,

1835—6,

AT THE

SHEFFIELD
MEDICAL INSTITUTION.

BY

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PREFACE.

Immediately after the delivery of the following Address, on the occasion for which it was originally prepared, I was requested by several of my auditors to have it published. For various reasons, however, which I need not enumerate, I then declined to accede to their suggestions ; and it is more than probable that it would now have remained in its manuscript state had it not been for circumstances which have recently come to my knowledge.

In numerous conversations which I have had with persons in very different classes of society, I have found a degree of prejudice on the general subject of dissection, and of ignorance of the provisions of the Act by which dissection is legalized, that I confess I was not prepared to expect. It seems to be generally believed, especially by the poor, that the bodies of the destitute must *necessarily* be given up to the Anatomist ;—nay, more than this, they suppose that the bodies of all persons dying in Workhouses, are so disposed of, and that dissection is thus made the penalty of poverty. Now such is not the fact. The body of the poorest individual dying in the Workhouse, is buried at the expense of the parish, provided it be

claimed by surviving friends. It signifies not how poor those friends may be, if they make application for the burial of the remains, no one by any clause contained in the Act has the power to deny them. Dissection is not the portion of those who die *penniless*, but *friendless*. If a rich man were to die, leaving no relatives behind him, the person who had lawful custody of the body, at the time of his death, would have just as much right to appropriate it to the use of the Anatomist, as the Overseer has to give up the body of the poor man. It appears, then, that the law is not directed exclusively against the poor. It is enacted that "it is lawful for the executor or other party having lawful possession of any person deceased," (rich as well as poor,) "and not being an undertaker or other party entrusted with the body only for the purpose of interment, to permit the body of such deceased person to undergo Anatomical examination."

In the following Lecture, I have endeavoured to shew that the feelings of survivors ought alone to be considered; and I have also stated my firm and deliberate conviction, that equal regard should be paid to every class and gradation of society. I need not enlarge on the subject in these prefatory remarks.

But does the law render it *imperative* that the body of every poor, friendless individual, who dies in the parish Workhouse, shall be dissected? NO IT DOES NOT. This sturdy fact ought to put to flight the fond imaginings of those who delight to work upon the feelings of the ignorant, by depicting the death-bed of the destitute, where there is no friendly hand to wipe the death-dew from the brow, and no sympathetic eye to shed a tear of sorrow on the scene; but

where the agonies of the dying, are said to be, fearfully increased by the consciousness that even the grave is denied to him—that, in fact, his body *must* shortly lie on the table of the Anatomist. I shall not stop to enquire whether the immediately succeeding destination of the body is likely to be a matter of much anxiety at such a moment or not;—but, admitting (what I do not believe), that it is, I observe that such an individual possesses a simple and efficient remedy for his anxiety; he has only to declare his wish in the presence of witnesses, that his remains should not be given up for dissection; and he takes away the power of the Overseer; no one, under such circumstances, has a right to assign his body to the Anatomist. Let the law speak for itself. After the paragraph which I have already quoted, concerning the power of an executor to give up the body of the deceased for Anatomical examination, it proceeds “*unless to the knowledge of such executor or other party, such person*” (as they are proposing to give up), “*shall have expressed his desire, in writing, at any time during life, or verbally, in the presence of one or more witnesses, during the illness whereof he died, that his body after death might not undergo such examination, or unless the surviving husband or wife or any known relative of the deceased person, shall require the body to be interred without such examination.*” But more than this, the Overseer is not *compelled* to give up the body of an individual under *any circumstances*; he is only *permitted* to do so under *certain circumstances*.

No body can be removed for the purpose of dissection, “until after forty-eight hours after such person’s decease;” and when the removal takes place,

a certificate is given to the party to whom it is conveyed, signed by the Medical man who attended the deceased, and stating particulars relating to "age, name, place of abode, and the particular cause of death." This certificate is immediately forwarded to the general inspector in London.


I have reason to believe that the immense majority of those who object to the "Anatomy Bill," are ignorant of the fact, that the remains of a person who has been dissected, are afterwards decently interred in Christian burial ground. Let the Act again speak for itself; "the party removing the same," (*i. e.* the body), "or causing the same to be removed as aforesaid," (*i. e.* in a decent coffin or shell), "*shall make provision that such body, after undergoing Anatomical examination, be decently interred in consecrated ground, or in some public Burial Ground, in use for persons of that religious persuasion to which the person whose body was so removed belonged.*" A certificate of such interment, signed by the officiating Clergyman, must immediately afterwards be forwarded to London. I shall only add, that so far as Sheffield is concerned, this requirement of the Act has been faithfully attended to.

Every body which has been dissected, has subsequently been buried in consecrated ground. A person disregarding this or any other provision of the Act, renders himself liable to fine or imprisonment.

A very erudite and elaborate pamphlet was published a few years ago by Dr. Thompson, on the subject of Anatomy—my object has been to treat it in a more *popular* way. I wrote for a mixed audience, but without the most distant view to publication; and I can now only hope that a candid perusal of what is

written, may be a means of lessening or removing the many and deep rooted prejudices which at present exist.

*Howard-street,
Feb, 18th, 1836.*



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INTRODUCTORY LECTURE.

IN commencing my address to you this evening, I must, in the first place, bespeak the indulgence of those who, on this occasion, have honoured us with their presence. It is, I assure you, with considerable reluctance that I appear before you. I had not the most distant wish to occupy the situation which I now do ; and it was only because I felt the importance of a Public Introductory Lecture being given, and because I had ascertained that no one else would deliver it, that I consented to provide one.

Our custom is, to elect one of our Members, every year, to fill this honourable post : the election is by ballot. This year it fell upon a gentleman in every way qualified to do justice to the subject : he excused himself, however, in consequence of the short notice which we were able to give him. Another election followed, when the Members evinced their wisdom by selecting an individual whose ardent zeal in promoting the best interests of the profession—whose long practical experience, and whose recent observations on many of the continental schools, would have ensured an interesting and instructive address. But again, the shortness of the notice which we were able to give, combined with some peculiar domestic arrangements, prevented our wishes being gratified. As a last resort, an application was made to me ;

and, as I have already observed, I preferred risking a few observations, put hastily, and even loosely, together, to omitting the Lecture entirely. Perhaps I should have better consulted my own reputation,—poor though it be,—had I resolved differently : perhaps I should also have better consulted the reputation of the School with which I am connected. I trust, however, that the brief space allowed to me will extenuate many of my own deficiencies ; and I know that you are too just and too wise to allow the Institution to suffer from the feebleness of its present advocate.

Some of my present auditors may possibly recollect that the subject of the Introductory Lecture which I had the honour of delivering last year, was suggested by the peculiar circumstances in which we were then placed. I thought it expedient, on that occasion, to give a short history of the rise and progress of this Institution—to give you an insight into its (then) present state and prospects, and to point out what I considered to be some of the principal advantages of such establishments. I afterwards adverted to some matters of general interest to the profession, and concluded with a few observations more particularly addressed to the Pupils. It is not my intention, this evening, to address you on nearly so many topics : I wish rather to confine myself to one subject, of great importance, which has been suggested to me by those proceedings which disgraced our town in January, 1835. Yes, Gentlemen, I hesitate not to say, that the destruction of the Medical School in Eyre-street was disgraceful, not merely to those who were actively and personally engaged in that act of wanton spoliation—it was disgraceful also to the hundreds of

respectable-looking people who stood calmly by to see valuable property destroyed—it was disgraceful to the town at large. I fear that the prejudices against dissection are by no means confined to the poorer and worst educated classes of society : I greatly fear that they have twined themselves round the understandings of numbers from whom we might reasonably have hoped better things. It is remarkable that many, whose views on general subjects are enlarged and philosophical, should have such narrow prejudices on the subject of Anatomy. I am so thoroughly convinced that the value and importance of anatomical pursuits are not properly appreciated, that I have resolved briefly to discuss this question in the present address.

Before commencing, however, I ought, perhaps, to apologise to my medical friends for bringing before them truths, the force of which they all admit ; and I should forewarn those non-professional gentlemen who are before me, that I shall not be able to do full justice to my subject in the brief period during which I can occupy their attention. The leading truths, or principles, which I have to lay down, are few and simple ; but their complete illustration would take us into details of very considerable length.

I never yet met with an individual who was not ready to admit, that every surgeon ought to possess an accurate and extensive knowledge of Anatomy : but I have met with many who argued, that this knowledge might be obtained without dissecting the human body, and they have proposed that it should be acquired by the dissection of the lower tribes of animals, from models, from plates, and from books.

In the first place, it is somewhat paradoxical to me,

that those who shudder at the idea of dissection—whose feelings of *humanity* are outraged at the thought of a dead body being what they please to call “*mangled*,” should yet see nothing like inhumanity in the proposal of the lower orders of God’s creatures being immolated, to supply the table of the Anatomist. They are too sensitive to allow the dead body of one who has died friendless to be subjected to scientific investigation ; and yet, with wonderful consistency, they would hang up the first poor dog they meet, and leave him for dissection. Thus they are willing to sacrifice life to spare the dead—they inflict tortures on the living, that the corpse may descend into the grave entire. If the lower tribes of animals had no feeling, and the lifeless human body retained but a millionth part of its sensibilities in death, then I could see some reason in such a proposal ; but when we know that the reverse is the fact—that many of the lower animals possess feelings of great acuteness, and that the dead feel not at all, then I can see nothing but a great mental and moral obliquity in the projectors of so wild a scheme.* I admit the value of Comparative Anatomy, and strongly urge upon all who are pursuing their medical studies to pay as much attention as they conveniently can to this interesting and important branch of knowledge. But mark, it is *Comparative Anatomy* that I am recommending ; and the term necessarily implies, that the dissection which is practised on the inferior animals should be *compared* with that of the

* I am well aware, that the feeling with which we regard the brute creation is very different from that with which we look upon the remains of a fellow creature ; but it is to the argument of *inhumanity* that I am replying. I understand by the term, cruelty—a wanton infliction of pain ; and I employ it when I speak of such infliction, either on man or beast.

human body. "We dissect these animals," says a late eminent medical writer,* "to derive, *by comparison*, additional information respecting the different organs and functions of the human structure; and we dissect them, not only to be better acquainted with the species to which they belong, but to correct or confirm our observations respecting a species which we have seen, and which, in order to be better understood, requires much collateral illustration. We dissect them, also, to learn, from analogy, the nature of a species which they resemble, but which we have not seen, nor ever had the power to examine. We dissect them in different periods of life, to observe the changes in structure and form which they undergo from birth to maturity, and to mark the relations between those changes, and the several changes of disposition, habit, and instinct. For the same reason, and to throw an additional light upon Medicine and Natural History, we dissect them in all the various states of health and disease, that we may know, from their outward symptoms, what are the changes taking place within, and thus be enabled to learn, from analogy, to retard, alleviate, successfully to resist or remove, diseases in ourselves or them." These, then, are the proper, legitimate objects to be had in view in dissecting the lower animals. Comparative Anatomy should be the hand-maid of Human Anatomy; but it will not—it cannot—supersede it.

It is true, that until the end of the fourteenth century, the Physicians and Surgeons, almost without exception, acquired the whole of their anatomical knowledge from the dissection of the inferior tribes of animals; and it is further true, that amongst them there were

* Dr. Barklay, *Introduct. Lect.* p. 137.

many whose names have been handed down, even to the present day—nay, whose works are still extant, and may be studied both with pleasure and improvement. I need only mention Hippocrates, Galen, and Celsus. But although there is much to admire in their writings, there is also much to lament ; for, amid many of the truths which they had wisdom to discern, you find the most grievous errors : they may almost be compared to a neglected garden, where the rampancy of the weeds has hidden the beauty and the fragrance of the flowers—or to the costly jewel, which would be rejected by the unscientific searcher, because it bears an incrustation, through which its brilliance cannot be perceived. But if the men I have enumerated, and others whom it would be easy to mention, knew much—if a perusal of their writings ensures the astonishment and applause of the classic reader, surely the fact of their having risen to such high distinction, amidst the difficulties by which they were beset, ought not to be urged as an argument against every facility being at present rendered to the acquisition of useful scientific knowledge. We should look at the number of minds which were oppressed by those difficulties, and, unable to surmount the obstacles which appeared on every side ; and we should learn this important lesson, that in every period of the world—in times of the greatest mental and moral gloom—when the blackness of ignorance was like the darkness of Egypt—a benevolent Creator has always called into existence some intellectual and moral light, which, like a comet in the planetary system, has cast a radiance around it. Whatever the emergency might be, there have always been a few master spirits who were equal to it ; and these

remain, as it were, green spots in the history of the world, whilst all around is but a barren unproductive waste.*

But again—it is said, “Yes, you must be well acquainted with Anatomy, but you must learn it all from models and plates.” At a very early period an attempt was made to teach Anatomy from plates and figures. Even in the third century, Moschion published a number of surgical figures; and about the beginning of the sixteenth century, almost every book on the subject was illustrated by numerous plates. Latterly an attempt has been made to represent the structure of the body by means of very ingenious models; some of these I have had an opportunity of examining, and I readily bear testimony to the ingenuity of their artificers. As *helps* to the study of anatomy, they are doubtless very valuable; but if you attempt to substitute them for the human subject, either its instant failure will evince the folly of your exertions, or you will inflict an injury on Medical science which will not speedily be remedied. If you for a moment reflect on the evils which would result from a single error committed in the delineation of the structure of parts frequently involved in surgical operations, when the only means of rectifying it will be by placing the limbs of a fellow creature in torture, or his life in jeopardy, you will at once perceive that such an experiment would be replete with danger; and, further, it would be an effectual barrier to the advancement or improvement of operative surgery. But let me for a moment avail myself of the

* Let it never be forgotten, that from the year 1500 to 1600, when Human Anatomy began to be more generally studied, there was more progress made in Anatomical and Physiological investigations, than there had been during the whole time preceding the former of these periods.

argumentum ad hominem. I ask, then, whether any of those whom I have now the honour to address would submit to an important and hazardous operation, when they knew that the operator had never dissected the human body—that he had acquired his anatomical knowledge from plates. I fancy not—nay is there a man in this growing town, possessed of any complicated piece of machinery—a steam engine for example, who would trust a person who had never seen one, though he may have seen a thousand plates, to try his unpractised hand in remedying it, when from some cause or other it needed repair? I am sure there is too much good common sense amongst our enterprising manufacturers to allow them to adopt so irrational a proceeding. Well, then, if you would not allow your steam engines to be *doctored* by any one who was not thoroughly and intimately and practically acquainted with their structure—would you be so demented as to entrust your own bodies—structures infinitely more complicated than any inanimate machine which the world contains, to the care of one who knows nothing of its various organs, but what he has acquired from a few prints or models? The idea is too absurd to dwell upon. Let me just remark, however, that in plates, you have a beautiful vermilion colour given to the arteries whilst the veins are seen of an azure blue. How astonished would a person be who saw the blood-vessels in a living extremity for the first time! He would, doubtless, look for the difference in colour to teach him which was the vein and which the artery; but, alas, he would look in vain—he must have some other knowledge to direct him in his difficulty. Only think of such an one

cutting down to the femoral artery which he wishes to tie in a case of popliteal aneurism!—the profound dilemma of the surgeon would only be equalled by the imminent peril of his patient.

But it is urged that there are plenty of Anatomical books published, and that by these a person may perfect himself in his knowledge of the human body, without the aid of dissection? Far more correctly might it be maintained that a person could perfect himself in geographical knowledge without the aid of either maps or globe. It would be as impossible for any one to become properly acquainted with Anatomy merely from books, as it would be for a blind man to discriminate the minutest shades of colour. We know that there are instances of blind men on record who were able to distinguish some of the prismatic colours, but I am not acquainted with any who could tell the minute shades obtained by mixture. So in Anatomy—there are many who have studied books only who could tell the situation of the larger blood-vessels, nerves, and muscles, but who would be quite at a loss to describe the relative situation of some of the smaller but very important parts. Nay, I would go further, and say that a proper knowledge of the bones cannot be acquired by reading merely. I have no hesitation in affirming that if a *sphenoid bone* were put into the hands of a person who had been endeavouring to obtain his information from books, and who had never seen the bone itself, he would not be able to point out the various processes and foramina which Anatomists describe. The opinion that Anatomy cannot be properly studied from books and plates, is not of to-day—it is one which has long been entertained—at least

it is as old as Galen, for we read that that distinguished Physician, was in the habit of recommending students to go from Rome to Alexandria, in order to obtain a sight of the human skeleton ; so convinced was he by his own experience that such knowledge was not to be acquired by reading or by oral description.

Oh, how you would smile at the man who called himself a Geologist, and yet who never with his hammer or his axe endeavoured to investigate the truths which lie embosomed in the earth ! How you would ridicule the man who pretended to deep Astronomical knowledge, and yet never read the truths of that sublime and elevating science in the clear and starry heavens ! How your laughter would be excited by one who plumed himself as a Botanist, and yet who never interrogated nature in the garden and the field—on the hill and in the dale—in the sunshine and in the shade—who never looked into the minute structure of the vegetable kingdom by microscopic aid—who never dissected a single plant ! And yet you think it not too much to require from a Medical Man that he should be conversant with the Anatomy of the human body—that he should be acquainted with its minutest organization—that he should be able to perform the most difficult and dangerous operations—that he should be skilful in detecting the slightest morbid changes and expert in the use of his scalpel ; without having had an opportunity of studying his profession, by careful and repeated dissection. Believe me, Gentlemen, nothing short of this can give that degree of skill to the Physician or Surgeon, which is essential to enable him to practise his profession with success. By

success, I do not mean with pecuniary advantage to himself, but with benefit to those who in times of sickness or of accident, are placed under his care.

But, say our humane and tender hearted friends, it is revolting to the best feelings of humanity, to see the bodies of our deceased fellow-creatures *mangled*. Yes, it has been objected to us that we mangle the dead. It would be well if those who use this term would define the precise meaning which they attach to it. If they merely mean that we minutely dissect the various organs of the body in order that we may better understand their structure and use, and thus be better able to apply suitable remedies when they do not perform their functions in a proper and healthy manner—then I admit the truth of the statement ; yet I would recommend them to change the term they use. But if it be meant that we cut, tear, and disfigure the body, with no useful object in view—that we delight in the bare fact of dissection, apart from the great benefits which result from it—that we actually enjoy the odour of the corrupting elements of the human frame, and that from mere wantonness, or amusement, or enjoyment, we cut diamonds on the remains of some fellow-immortal, and chop his muscles into mince-meat—nay, if any thing be meant beyond the simple fact that we engage in this work for the purpose of acquainting ourselves better with the structure of the body, in order that we may be better prepared to discharge the high and important duties of our profession—I now in the name of my brethren, connected with me in this School, and in the name of the whole Medical Profession, openly and solemnly repudiate the charge. Let those who think dissection so delightful, come to our rooms some

morning at day break, remain with us about two hours, and then "to breakfast with what appetite they may." I think they would be perfectly convinced by so trifling a specimen, that a man would at any rate, require some wooing, before he became enamoured of Anatomical pursuits.

It is very much to be regretted that exertions should ever be made by the more intelligent classes of society, to create or increase the prejudices of the ignorant on the subject which is now engaging our attention. Anatomy is absolutely essential to the Medical Practitioner, and the only method of acquiring a competent knowledge of it is by dissecting the human body. There can be no efficient substitute. This fact it should be recollected is now recognised by the Legislature. There is a legal provision made, and he is not consulting the best interests of the community, who endeavours to throw obstacles in our way. The friends of the departed may now be at peace, they may hush all their anxieties about the violation of the grave; those who descend into the tomb remain there unmolested. And oh, is this a state of things you would wish to see disturbed? Would you exchange the calm resignation of the sorrowing mind, for the fearful disquietude which those experience who have no confidence that the dead will rest in safety? Would you again see the midnight depredator robbing even death of his spoil? Are you prepared for all the evils which follow in the train of the Resurrectionist? If not, then defy not the law of the land, but rather, so far as you have severally ability, endeavour to assist in its execution. This is a most important matter—subjects for dissection must be had. The table of the Anato-

mist must be supplied from some class of society—either from the rich or from the poor—from those who have numerous friends or those who have none. The feelings of survivors are alone to be consulted—the dead are alike insensible to indignity and pain. The friends of the poor feel as acutely as the relatives of the wealthy, and I should be equally unwilling to add to the poignancy of their grief, when they are lamenting the departure of one they loved. But when an individual dies, and dying leaves not a friend or relative behind him, either to mourn his loss or to follow him to the grave, I cannot see the inhumanity of consigning him FOR A SPECIFIC PERIOD to the use of the Anatomist before his burial. *Observe, we can only keep the body a certain time. Within a limited period from the receipt of it, we are compelled to afford Christian burial to the remains—a Certificate is given with every body we receive—that Certificate is forwarded to the General Inspector of Anatomy in London, and within the period I have alluded to, we are obliged to forward a Clergyman's Certificate of the burial.*

But there are some who say that if dissection is so necessary to Medical Men, the Doctors ought to leave their own bodies for the purpose. To this I object, in the first place, that it is for the good of the public, and not merely of the Doctors, that dissection is required. The Doctor dissects to increase his skill, but the public reaps the benefit of that skill. In every age of the world, Medical Men have been employed, and they probably will be as long as the world endures, whatever may be the degree of ability they possess. If they were a thousand times more ignorant than they are, they would

still be consulted by the sick and maimed, and they would only be employed by such, if they were a thousand times better informed. If dissection were prohibited to-morrow, the race of Doctors would not be annihilated, and others would not be prevented rising up to fill their places when the present generation has passed away. Our successors would find no lack of patients, and the patients would find no abatement in the amount of fees. In a pecuniary point of view, then, the profession would not be injured if dissection were interdicted; but would the public suffer no injury? Is it not a fact that the interests of the community at large are very intimately bound up with the advancement of Medical Science? This part of our subject we shall endeavour to illustrate almost immediately.

To the project of exclusively appropriating the bodies of deceased Medical Men to the use of the Anatomist I object secondly, that Doctors have relations and friends, wives and families, as well as others. And I see no reason why the feelings of their survivors should not be respected as well as the feelings of any other person who is mourning a bereavement. I have already endeavoured to show that it is those that are left who claim our sympathy, and not those who are departed; if this be true, why should the grief of *our* surviving friends be mocked—their feelings sported with—their sorrows a thousand fold increased? Enact such a law, and you might as well establish the horrid system of Sutteeism in the British dominions.

But I object, lastly, that if there be any ignominy connected with dissection, it ought not to be visited on those who during life devoted their time and their

talents to relieving the distresses of their fellow-creatures. But on this part of my subject I shall not enlarge.*

I have already repeatedly said that dissection is essential to the proper cultivation of Medical Science. I must here, however, remark that it should be practised with the greatest possible delicacy. Every care should be taken by those who have the superintendence of the rooms, that no unseemly or unbecoming practices are permitted; every student should have it constantly impressed upon his mind that his subject was his fellow man. Levity and ribaldry do not become the dissecting room, and the man who can indulge in either the one or the other, whilst engaged in Anatomical pursuits, shows a perversity of moral feeling, which I neither envy nor respect. At the present day, guarded as we are by the law of the land, the public have a right to demand that the greatest possible decency is observed in practising dissection, but they have a right to demand no more.

Recourse is frequently had in reference to dissection, to a number of bug-bears, for the purpose of increasing or perpetuating the prejudices of the ignorant. To these I think it unnecessary to reply. Those who talk about our boiling the body—about our immense cauldrons and so forth, evince their ignorance by their statements—they plainly show that they understand

* I know it will be urged that we do not give our services without receiving an adequate remuneration. To this I reply, that as a body, Medical men, devote more time *gratuitously* to the relief of their fellow creatures, than any other class of men. But even when they are paid for their labours, the recompense for the most part, is comparatively small. It is said of Dr. Johnson, that he always censured Swift for his unprovoked bitterness against the Professors of Medicine; and that “he used to challenge his friends, when they lamented the exorbitancy of Physicians’ fees, to produce him one instance of an estate raised by Physic in England.”—*Boswell’s Life of Johnson*, Vol. i. p. 44.

not the subject on which they write, and that they have not visited the scenes they pretend to describe.

It is somewhat remarkable that in every period of the world, both antecedently and posterior to the Christian era, the most deep rooted prejudices have existed in the minds of the immense majority of mankind, against the practice of human dissection, and the most opprobrious epithets have been used towards those who have been engaged in such pursuits. Thus we find Tertullian, a pious and erudite father of the Primitive Church, who lived in the second Century of the Christian era, when speaking of Herophilus, a celebrated Physician and Anatomist, who lived three hundred years before the birth of our Saviour, mentions him in the following terms—“Herophilus ille medicus aut lanius qui sexcentos execut ut naturam scrutaretur.” And after having thus described him, he proceeds to make sundry grievous and weighty charges against him—that he hated man and that he dissected his fellow-creatures alive. The charge of *vivisection* has been urged both against Herophilus and his companion Erasistratus, but it is one which it would be difficult to establish. In endeavouring to arrive at the truth we should remember the rude age in which they lived, and we should make allowances for the exaggeration which would be made at the time—the strong disgust with which the Anatomists would be regarded by their less enlightened townspeople, and the amplifications which would be made to these tales of horror by every succeeding generation. Five hundred years elapsed between the times of Herophilus and Tertullian. It is true that the celebrated Celsus appears to have believed the charge, but he lived more than three hun-

dred years after the Ptolomies, in whose reign these enormities are said to have been practised. And it is worthy of particular note, that Galen who flourished half a century nearer the time of Herophilus than Tertullian, although he makes frequent mention of him as a most eminent Anatomist, never alludes to the charge to which I have referred. This, however, is a branch of our subject on which it is impossible to enlarge. I shall not enter into the inquiry, but only remark that the opprobrious term employed by Tertullian in the second Century, is very current in our own day—yes for seventeen centuries past, the term “butcher” has been freely applied to those who have zealously engaged in practical Anatomy.

What an example did the Ptolomies set to the world, who not only established the celebrated Alexandrian Library, which consisted of 700,000 volumes, but also founded Medical Schools and Hospitals, and publicly patronized dissection! And what was the result of the efforts which they thus made? Why, that Alexandria outstripped every other place in commercial wealth and literary reputation; and what more immediately concerns our present purpose, the School of Medicine established there, soon eclipsed every other in the number of its Pupils and the celebrity of its Professors, and produced a rapid succession of the most eminent Physicians.

At a very early period of the world, the Egyptians were in the habit of having the bodies of their deceased relatives embalmed, and we find by a reference to the 50th Chapter of the Book of Genesis, that Medical men were employed in the operation. “Joseph commanded his servants, the Physicians, to

embalm his father." But so incensed were the Egyptians against any one who offered violence to a dead body, that even the person who made the incision into the abdomen, in order that the embalming process might be effected, was obliged immediately to flee, and he was pursued with stones and other missiles by the people. I dare say every one of you will think this conduct most extraordinary, you will think it most unjust that insult and injury should be heaped upon one who has been engaged in discharging the public duties of his calling; but it is not a jot more extraordinary or more unjust than the conduct of the people towards the members of the Medical Profession at the present day. They send for a man, and expect him to ascertain the cause of the various ailments of which they complain, and to be able at a moment's notice, to perform the most difficult and dangerous operation in Surgery—an operation which could not be safely performed by any one who had not the most intimate acquaintance with the anatomy of the parts; and yet if they find him pursuing his anatomical investigations—if they find him dissecting such subjects as the law gives to him, they destroy his property—endanger his life—and disturb the peace of the whole community. Surely such conduct is very near allied to madness. It is high time some effort were made to allay the morbid sensibility of the public on this subject.

In the short period which yet remains to us, I purpose very briefly to notice the improvements in Surgery, Physiology, Pathology, and the Practice of Physic, which have immediately resulted from an extended knowledge of Anatomy. I can only, how-

ever, make one or two selections in each department.

1. With respect to Surgery.—We learn that in the Seventeenth Century, after Anatomy had made considerable progress—when it was necessary to amputate a part of the foot at the Tarsus or Metatarsus, it was done by means of a large chisel and mallet, in consequence of which so much injury was sustained by the tendons, nerves, and ligaments, that the patients but rarely recovered. And even in the Eighteenth Century, when the removal of a portion of the Tarsus or Metatarsus (bones of the foot), was necessary, the surgeons were so inexpert in the performance of operations requiring much nicety, that they preferred amputating the leg in such cases just below the knee. At the present day, the diseased portion is easily removed, and the patient left with a tolerable good foot.

I need not stop to point out the advantage of the latter method over the former one. I will only observe, that if surgeons had not become better acquainted with the anatomy of the human foot, and more expert in the use of the knife, the former would still have been resorted to.

Again, in the Seventeenth Century, we read that when a hand was to be removed at the wrist, the diseased member was placed on a block, and struck off at one blow of the mallet and chisel. It is very evident that many evils resulted from such a practice, but I cannot stop to point them out. As Surgeons became better acquainted with the nature of the parts involved in the operation, they gradually adopted a more scientific process.

But, again, we find that amputation was very fre-

quently performed when an Aneurism existed in one of the large vessels of the extremities, or when one of such vessels had been accidentally wounded. At an early period of Surgical practice the Surgeons were not sufficiently acquainted with Anatomy to be able to take up the wounded vessel; and even in the middle of the Eighteenth Century, this was regarded as so important an operation, that they proceeded to it with fear and trembling. Heister, who was one of the most celebrated Surgeons of his day, and who published a very admirable system of Surgery, in 1739, when speaking of wounds of blood-vessels, recommends, “when the hemorrhage is considerable, and appears to proceed from an artery,” in the first place a dossil of lint to be applied over the wounded vessel, and secured by means of a bandage. If this does not perfectly restrain the flow of blood, he advises the application of rectified spirits of wine or oil of turpentine; if these means do not succeed, he prescribes the external use of oil of vitriol—if the hæmorrhage still continues, he recommends that the vessels be divided; if this is unsuccessful he applies a red hot iron; if this fails the vessel must be taken up and tied. But how very much was the chance of success lessened by the use of the remedies which had previously been resorted to. Extensive ulceration—if not mortification, would be sure to result from the adoption of such a practice. Now, it should be borne in mind that wounds of arteries are produced in a moment, and demand immediate attention. An individual who is called to a man who has accidentally wounded the femoral artery, for instance, has no time to go and consult works on Anatomy—books of plates—models, or the relative situation of parts in a

dog's thigh—he must be prepared to act at once—he must apply pressure in such a situation as will command the vessel above the point where it has been punctured, and then he must proceed to perform the operation. Now this is easy enough to one who is perfectly and practically acquainted with the anatomy of the parts concerned; but it is a most fearful and hazardous undertaking for a man whose anatomical knowledge has been obtained from any other source than the human subject.

Again, with respect to Aneurism, we find the ancient Surgeons exceedingly ignorant. I have already alluded to the fact of amputation being performed in such cases. But I may further remark, that a certain amount of Anatomical knowledge is necessary to enable us to diagnose an aneurism, and in this respect we not unfrequently find our forerunners in error. A case is related by Bartholine, in 1644, in which a tumor on the leg was mistaken for an abscess—it gradually extended—mortification of the toes took place—the foot was amputated, and a few days afterwards it was judged expedient to open the tumor, which instead of being an abscess proved to be an aneurism, and the patient died under the operation.

The successive improvements which took place in the operation of which I am speaking, I cannot at present mention; they would occupy more time than I can spare. I will only remark that we may easily trace them all to the increased Anatomical knowledge which practitioners acquired. I may just observe, that in Popliteal Aneurism, after the employment of the ligature had been adopted, it was applied immediately above the diseased part, which very much lessened the chance of the patient's recovery. The

vessel is now secured at a considerable distance from the seat of disease, and the operation is not only facilitated but rendered much more successful. But it required Anatomical knowledge to demonstrate that the artery which we find in the popliteal space, is a continuation of that which runs down the inside of the thigh; no process of reasoning could have discovered this; and it required a still more intimate acquaintance with the anatomy of the parts, to show that if the vessel were tied high up, the anastomosing branches would be sufficient to carry on the circulation in the limb, below the part where the ligature was applied. This is a point of knowledge to which we have but recently attained.

It would be an easy matter to furnish many additional examples in proof of the fact, that successful operative surgery depends very intimately on an extensive and minute knowledge of Anatomy; and that as Anatomical knowledge has increased, operative surgery has correspondingly improved. I am compelled, however, by want of time, to pass on to show, which I shall do very briefly, that

Secondly, our knowledge of Physiology depends on Anatomy.

I need scarcely remark, that we mean by Physiology that science which has for its object the knowledge of the phenomena proper to living bodies. In other words, it is the science which treats of the action of the various organs of which such bodies consist. An accurate knowledge of Physiology, however, cannot be obtained merely by dissecting the dead body, it is essential that numerous experiments should also be performed on living animals. And observe, after the experiments to which I now allude have been

performed, it is requisite that the human subject be dissected in order that we may ascertain the existence of similar parts, performing similar functions in them. If such a course of proceeding were not adopted, the consequence would be, that we should be left in ignorance of the relative importance of the various organs of the body, we should know nothing of their healthy functions, and we should not be able to localize disease.

It does not enter into my plan to draw your attention largely to the crude and extraordinary physiological doctrines of the ancients. We now smile at the idea of a fire existing in the left ventricle of the heart—of respiration being necessary in order to carry on combustion, and of the auricles of the heart being nothing more or less than bellows by which the air received on inspiration, is applied to the flame in order to keep it in. Yet such opinions were at one time current in the world, and entertained by men of the first celebrity in the profession.

Amid the multitude of illustrations which suggest themselves to my mind, I feel a difficulty in selecting one or two, which will place the subject in the strongest light to my non-Medical hearers. Perhaps, however, I cannot do better than entirely confine myself to the greatest physiological discovery which was ever made—I mean the circulation of the blood.

If we trace back the history of Medical Science, we shall find that the first ray of light which was thrown on the circulation of the blood, was by Servetus, who flourished at the commencement of the Sixteenth Century, and we shall perceive that in proportion as men became better acquainted with the

Anatomy of the vascular system, they approached nearer and nearer to that immortal truth which Harvey revealed to the world in the year 1628. And what was it that opened the eyes of Harvey, and enabled him to unfold the course of the circulation? It was an Anatomical discovery made by his instructor Fabricius ab Aqua Pendente, who was the first clearly and satisfactorily to demonstrate the valves which exist in the veins. It was this circumstance, I say, which led Harvey to the discovery which has immortalized his name. I aver not this thoughtlessly or from mere conjecture, but on the authority of Harvey himself, who declared to the celebrated Mr. Boyle, that it was his knowledge of the structure and uses of the valves, which led him to the glorious result of his experimental researches. But before the time when Fabricius demonstrated the valves, they had been seen by Cœsalpinus who very nearly anticipated our immortal countryman in his discovery. We find, however, that Cœsalpinus was only *generally* acquainted with the valves—he was not intimately and minutely acquainted with their structure and uses, and, therefore it was, that he was kept only on the *threshold* of discovery: he had got light enough to guide him *into* the mystery, but not enough to guide him *out* of it. I need not stop to point out the advantages which resulted to Medical Science from the knowledge which Harvey communicated, nor yet to notice the disgraceful and ungrateful treatment which he experienced from his contemporaries: I rather pass on to observe, that it is to an Anatomical discovery that we are indebted for the knowledge which we have of the manner in which the waste of blood is supplied. You are aware

that the various secretions are formed from the blood, in this way the circulating fluid is constantly diminishing in quantity. How is this diminution supplied? You will at once answer by the food which we take; but this could not be demonstrated without the aid of dissection. And thus we find that it was not till thirty-three years had elapsed after the discovery of the circulation, that Pecquet traced the chyle through the Lacteal vessels into the Thoracic duct, and thence into the sanguiferous fluid. This discovery could never have been made, however, without the aid of minute Anatomical investigation. The Lacteals themselves had been previously pointed out by Asellius, an Italian Physician, in 1622; but very erroneous opinions were entertained as to their use. In fact, he had not traced them to their termination as Pecquet did.

But, interesting as this division of my subject is, and admitting as it does of most abundant illustration, I am obliged from want of time, to pass it over with this very slight notice, omitting altogether to remark upon some of the most interesting Physiological discoveries of modern times.

Third, I observe, then, once more, that it is to Anatomy we are indebted for our knowledge of Pathology. It has been already remarked, that by *Physiology* we mean the science which treats of the healthy action of the various organs of our bodies; now *Pathology* is the reverse of this, it is the science which treats of the morbid actions which occur when any of our organs are in a state of disease. It is the science by which we are able to trace the effect up to the cause,—to show the dependence of a particular train of symptoms on certain morbid conditions of particular parts

of the body. Now, surely it is not needful for me at all to enlarge on the two following observations:—

First, that if we were not accurately acquainted with the *healthy action* of parts, *we could not tell when their action was morbid*. Secondly, that if we were not perfectly familiar with the *healthy and natural appearance* of the various textures which enter into the composition of the body, *we could not recognise their diseased condition*.

There are some persons who admit the importance of *morbid Anatomy*, whilst they deny the necessity of dissection generally. Such individuals would permit us to examine the bodies of departed friends, but they would withhold from us a supply of subjects for dissection. Now, I would not for a moment, in the slightest degree, undervalue the importance of *post mortem* examinations. No one appreciates them more highly than I do; but I maintain that apart from general Anatomy, they would be useless. The object of such examinations is to compare diseased with healthy appearances, and to trace the connexion which subsists between the symptoms of disease and the morbid condition of particular organs. Interdict the practice of Anatomy, and then expect individuals minutely and accurately to point out morbid appearances, and you would act about as wisely as if you were to request a person to ascertain for you the specific gravity of some particular substance, who was ignorant of the standard of comparison. How is it that the French, as Pathologists, are so superior to ourselves? It is that hitherto their facilities for obtaining Anatomical knowledge, have been so much greater than our own.

But I pass on to remark Lastly, that the scientific

Practice of Physic, is deeply indebted to Anatomy. In the days of Egyptian darkness, we know that the body was divided into thirty-six parts, and that each part had its tutelary genius—diseases were then supposed to be owing either to the displeasure or the neglect of one or more of those superintending deities, and they were removed by the performance of certain magical incantations. But as light gradually broke upon the world, the mists of ignorance gave way ; it was the light, however, of Anatomical knowledge which dissipated the clouds which hung over the healing art.

Medicine cannot be scientifically or successfully practised by any one who is ignorant of Physiology and Pathology, and if those two branches intimately depend on Anatomy, so of necessity must the Practice of Physic also. But what is required of us in the every day exercise of our Professional duties ? Not merely that we should be made acquainted with a train of symptoms, and prescribe for their removal—but that we should ascertain on what those symptoms depend, and then endeavour to remove the cause—we should be able to distinguish a particular disease from another which it closely resembles—we should be ready to tell in which particular texture the malady is located—the nature of the morbid change and the probability of the patient's recovery. A rational prognosis cannot be formed without a person is possessed of all this information, neither can the treatment be judiciously administered. But let me illustrate this. Suppose a person calls on an exceedingly ignorant Medical Man, and tells him that he has got a pain in the Bowels accompanied with Diarrhœa. The Doctor advises him to take a little brandy to relieve the pain,

and says he will order some medicine to comfort his Bowels. "Well," says the patient, "I hope there is no danger, Doctor." "Oh, no," is the reply, "you may go to work as usual." For a short time, perhaps, the sick man feels better, but after a while the same symptoms recur, the same remedies are repeated, and the probability is that emaciation takes place, and after a few weeks or months, death closes the scene. The fact is, that the symptoms of which the man complained when he applied for Medical aid, depended on inflammation of the Mucous Membrane of the Bowels—a wrong method of treatment was adopted, extensive ulceration took place and carried off the patient.

How are we to know that a particular train of symptoms depend on inflammation or ulceration of the Mucous Membrane? Not by intuition, but by having witnessed similar cases terminating in a similar way, and afterwards having had an opportunity of examining the body. But how are we to know when particular appearances are morbid, if we have not previously seen the parts in a healthy condition?

How is it that we are able to foretell what will be the issue of a disease? It is by knowing the organic lesion with which it is connected. How is it that we are able successfully to apply remedial agents? It is by directing them to the seat of the morbid change—not to the symptoms but to their cause. How is it that we occasionally find a case cured by one Medical Man, which has been given up as incurable by another, or pronounced to be curable by one and incurable by another? It is because they do not see with equal clearness the connexion which subsists between the symptoms and the organic changes on which they depend.

It would be interesting and amusing, if I had time, to direct your attention to many of the theories of particular diseases, which were entertained by the ancients. I would refer you especially to Dropsy, and it would be seen how exceedingly vague, crude, and unsatisfactory their notions were. In fact, it is comparatively within a very few years, that the attention of the Profession has been directed to the morbid conditions of the Peritoneum, the Kidneys, and the Liver, as causes of Dropsical effusion. I cannot now stop to point out the intimate connexion which exists between the treatment of a disease and its true *Ætiology*. There are many diseases whose Pathology is even at the present day very imperfectly understood. I may instance Insanity as an example. How are we to gain a clearer insight into this most fearful malady? There is no other way than by repeatedly dissecting the brains of those who die insane.

I feel reluctant to bring this division of my subject to a close. I am conscious, however, that I have kept you long enough. I have endeavoured to shew you that a knowledge of Anatomy is essential to Surgery, to Physiology, to Pathology, and to the Practice of Physic; and I have also endeavoured to prove that an adequate knowledge of the human frame cannot be obtained from dissecting inferior animals—from plates, from models, or from books alone. The plain and simple inference is, that if Medical Science is to advance—nay, if even it is to remain stationary, and Medical Men are to be adequate to the duties of their profession, the dissection of the human body must be diligently practised.

It was originally my intention to have added some remarks on the use of Anatomy to the Sculptor, the

Naturalist, and the Physico-Theologist. These divisions, however, I must entirely pass over.

“ I am fearfully and wonderfully made,” says the Psalmist, and doubtless we are all of us ready to acquiesce in this declaration. But oh, who can tell the wonderful mechanism of the human frame so well as the accomplished Anatomist—who can perceive so clearly the wisdom of the Almighty in our formation—who can so well appreciate the admirable adaptation of means to ends !

An Anatomist may be immoral—he may pay but little regard to the services of Religion—he may wander far from God ; but whilst he views the beautiful structure of the human body, he cannot be an Atheist.

“ A man possessed of that humility which is akin to true knowledge,” says an elegant and powerful writer, “ may be depressed by too extensive a survey of the frame of nature. The stupendous changes which the Geologist surveys—the incomprehensible magnitude of the heavenly bodies moving in infinite space, bring down his thoughts to a painful sense of his own littleness. To him the earth with men upon it will not seem much other than an ant-hill, where some ants carry corn, and some carry their young, and some go empty, and all to and fro, a little heap of dust. He is afraid to think himself an object of Divine care ; but when he regards the structure of his own body, he learns to consider space and magnitude as nothing to a Creator. He finds that the living being, which he was about to condemn in comparison with the great system of the universe, exists by the continuance of a power no less admirable than that which rules the heavenly bodies. He sees that there is a revolution—

a circle of motions no less wonderful in his own frame—in the microcosm of man's body, than in the planetary system—that there is not a globule of blood which circulates but possesses attraction as incomprehensible and wonderful, as that which retains the planets in their orbits.”

Who, then, that knows these things and reflects on them, and who is in the habit of contemplating the Wonders of Creation, both animate and inanimate, by which he is on every side surrounded, and more especially who is in the habit of viewing and contemplating the beautiful—the wonderful structure of the human body, is not ready to take up the language of the inspired Penman, and exclaim, “ Oh Lord, how manifold are thy Works, in wisdom hast thou made them all.”

